

REMARKS

By this Amendment, the independent claims are amended to merely clarify the recited subject matter. Claims 1-24 are pending.

Claims 1-5, 8-12, 15-16 and 21-24 were rejected under 35 U.S.C. 102(b) as being anticipated by Nishizato et al. (U.S. 5,440,887; hereafter "Nishizato"), claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizato and Sivaramakrishnan et al. (U.S. 6,224,681; hereafter "Sivaramakrishnan," claims 7 and 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizato and Yuuki et al. (U.S. 6,776,254; hereafter "Yuuki"), claims 13-14 and 18-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizato and Hofmann et al. (U.S. 4,847,469; hereafter "Hofmann") and claim 17 was rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizato. Applicant traverse the prior art rejections because the cited prior art, analyzed individually or in combination, fails to disclose, teach or suggest all the features recited in the rejected claims. For example, the cited prior art fails to disclose, teach or suggest the claimed invention wherein the small aperture connected to the vaporizing chamber is always open to the vaporizing chamber.

As would be understood by one of ordinary skill in the art from the teachings of Applicants' specification, because the small aperture connected to the vaporizing chamber is always open to the vaporizing chamber, there is no valve body located in the vaporizing chamber. Thus, a free and smooth flow of the vapor generated by achieved. Since Applicants' claimed invention includes the small aperture that is continuously open, there is no member blocking a flow of vapor from the small aperture. As a result, mists and vapor of the liquid exiting from the small aperture flow into the vaporizing chamber having a relatively large volume, which results in rapid and efficient vaporization of the liquid exiting from the small aperture.

To the contrary, Nishizato merely discloses a structure in which a vaporization valve 12 is located in the vaporizing chamber so as to open and close the through hole 23 (corresponding to the small aperture of the present invention). Thus, Nishizato lacks the claimed "always open" aperture, which would provide free and smooth flow of vapor from the exit of a through hole and through a vaporizing chamber. Therefore, the structure disclosed in Nishizato fails to provide such utility.

With regard to claim 24, the Office Action asserted that Nishizato discloses a vaporizing chamber lacking obstacles including the vaporization valve body. However, FIG. 2, 3 and 5 of Nishizato clearly illustrate that the vaporization valve 12 (including the valve body 12a) is located in the vaporization control chamber 13, which is a large obstacle with respect to vapor flow. Thus, according to Nishizato's express teachings, a pressure loss is generated by the valve body 12a prevents a smooth flow of vapor. Additionally, the liquid exiting from Nishizato's through hole 23 may adhere onto the valve body 12a, which may cause a problem in that the liquid decomposes before being evaporated; as a result metal deposition occurs due to the decomposition of the liquid, as prior art deficiency recognized and discussed in Applicants' specification at, page 3, line 16 to page 4, line 17.

Accordingly, Nishizato fails to disclose, teach or suggest the claimed invention wherein the small aperture connected to the vaporizing chamber is always open to the vaporizing chamber.

Sivaramarkrishnam fails to remedy the deficiencies of Nishizato because Sivaramarkrishnam merely teaches a valve formed by one of a diaphragm and a bellows for the purpose of controlling liquid flow; however, such configurations do not remedy the deficiency of Nishizato. Nishizato merely discloses a vaporizer which vaporizes a liquid material under a depressurized atmosphere, the vaporizer comprising: a liquid storing chamber (Figures 2 and 3, 6) temporarily storing the liquid material therein; a vaporizing chamber (13) set in the depressurized atmosphere; a small aperture (23) connecting between the liquid storing chamber and the vaporizing chamber so as to supply the liquid material to the vaporizing chamber.

Similarly, Yuuki fails to remedy this deficiency of Nishizato and Sivaramakrishnan because Yuuki merely teach the use of a vaporizing chamber having a conical shape.

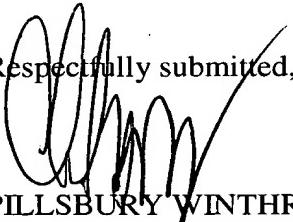
Further, Hofmann fails to remedy this deficiency of Nishizato, Sivaramakrishnan and Yuuki because Hofmann merely teaches that the sizing of a vaporization chamber for supplying a processing gas to a deposition chamber is scalable.

Accordingly, the cited prior art, analyzed individually or in combination, fails to disclose, teach or suggest the claimed invention wherein the small aperture connected to the vaporizing chamber is always open to the vaporizing chamber, as recited in the rejected claims.

Accordingly, claims 1-24 are patentable over the cited prior art for the reasons asserted herein. Therefore, Applicants request that the Examiner issue a Notice of Allowance indicating the allowability of the pending claims. However, if anything further is necessary to place the application in condition for allowance, Applicants respectfully request that the Examiner telephone Applicants' undersigned representative at the number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

  
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